Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of the Commission's Rules	)	
To Ensure Compatibility with	)	CC Docket No. 94-102
Enhanced 911 Emergency Calling Systems	)	
	)	

FOURTH MEMORANDUM OPINION AND ORDER

Adopted: August 24, 2000 **Released: September 8, 2000**

By the Commission: Chairman Kennard issuing a separate statement; Commissioners Ness and Tristani approving in part, dissenting in part, and issuing a joint separate statement.

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I. INTRODUCTION

1. In this Order, in response to petitions for reconsideration of the *E911 Third Report and Order*[1] we make certain changes to our wireless enhanced 911 (E911) rules aimed at facilitating full compliance with those rules on a nationwide basis. Specifically, we make adjustments to the deployment

[1] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Third Report and Order*, 14 FCC Rcd 17388 (1999) (*E911 Third Report and Order*).

schedule that must be followed by wireless carriers that choose to implement E911 Phase II service using a handset-based technology. While we retain October 1, 2001 as the implementation date for E911 Phase II, we defer the date for initial distribution of Automatic Location Identification (ALI)-capable handsets by seven months and we adjust the timetable for carriers to meet certain interim benchmarks for activating new ALI-capable handsets. In addition, we defer the date by which a carrier must achieve full penetration of ALI-capable handsets by one year, and modify the manner in which we define full penetration. Further, we eliminate the separate handset phase-in schedule triggered by a request from a Public Safety Answering Point (PSAP). We also provide a modest extension of the deadline for carriers to file E911 implementation reports, requiring that these reports be filed by November 9, 2000. In our judgment, these changes establish a more practical, understandable, and workable schedule for implementation of handset-based ALI solutions.

2. We also address several other issues regarding implementation of E911 Phase II, including several requests for waiver of the requirements for handset-based technologies. More specifically, we deny Sprint's request for authority to implement a "hybrid" ALI solution. We find that Sprint has not adequately demonstrated that special circumstances exist that warrant a deviation from our rules, nor that grant of such a waiver would be in the public interest. We grant, however, a waiver to VoiceStream Wireless (VoiceStream), subject to certain conditions, to permit it to deploy a hybrid location solution, that would involve software upgrades to both network equipment and handsets, because we find that VoiceStream's proposed system will provide meaningful public safety benefits and may be the only solution available for the Global System for Mobile Communications (GSM) air interface in the near future. Finally, we deny a request by United States Cellular Corp. (USCC) that we grant an extension of all Phase II deadlines for rural carriers until ALI-capable handsets are widely available.

3. The October 1, 2001 E911 Phase II implementation date is now less than 14 months away. In the four years since the Commission's wireless E911 rules were first adopted, much progress has been made in developing technologies to make wireless E911 a reality, although much still remains to be done. The decisions we make today will provide additional clarity to wireless carriers, equipment manufacturers, and the public safety community, as well as to others involved in the development and deployment of location technologies, to help ensure that Phase II is operational on schedule. The hard work and ingenuity of many people have produced a number of location solutions that are now commercially available, or are scheduled to be available soon; many PSAPs are working to upgrade their systems to receive and use Phase II location information. Our Order today supports those efforts, so that wireless carriers and PSAPs may begin using location information to speed help to emergency scenes in order to save lives.

II. EXECUTIVE SUMMARY

4. In this Order, we adopt the following changes to the Phase II rules:

Handset-based ALI Technologies:

We modify the rules for carriers employing handset-based ALI solutions in the following respects:

- Extend from March 1, 2001 to October 1, 2001, the date for carriers to begin selling and activating ALI-capable handsets.
- New Activations:
  - We eliminate the separate phase-in schedule that is triggered by a PSAP request.

- We adopt the following revised phase-in schedule:
  - December 31, 2001: at least 25 percent of all new handsets activated are to be ALI-capable;
  - June 30, 2002: 50 percent of all new handsets activated are to be ALI-capable;
  - December 31, 2002 and thereafter: 100 percent of all new digital handsets activated are to be ALI-capable.

- Penetration:

  - Extend from December 31, 2004, to December 31, 2005, the date for carriers to reach full penetration of ALI-capable handsets in their total subscriber bases.

  - Modify the operational definition of full penetration from "reasonable efforts" to achieve 100 percent penetration of ALI-capable handsets to a requirement that 95 percent of all handsets in a carrier's total subscriber base be ALI-capable.

All Technologies:

- We extend the date for carriers to file E911 Phase II implementation reports from October 1, 2000 to November 9, 2000.

5. We grant a waiver to VoiceStream to permit it to employ an ALI solution that requires changes to both its network and handsets, subject to the following conditions and requirements:

- VoiceStream must implement a network safety solution that provides baseline location information for all wireless 911 calls no later than December 31, 2001.

  - The accuracy requirement for this baseline location information is 1000 meters for 67 percent of calls.

- By October 1, 2001, VoiceStream must ensure that 50 percent of all new handsets activated are Enhanced Observed Time Difference of Arrival (E-OTD)-capable.

- Effective October 1, 2001, VoiceStream must ensure that all E-OTD-capable handsets comply with an accuracy requirement of 100 meters for 67 percent of calls, 300 meters for 95 percent of calls.

- By March 31, 2002, VoiceStream must ensure that 100 percent of all new handsets activated are E-OTD-capable.

- VoiceStream must ensure that all new E-OTD-capable handsets activated on or after October 1, 2003 comply with an accuracy requirement of 50 meters for 67 percent of calls, 150 meters for 95 percent of calls.

- VoiceStream must report the results of all trials and tests of its ALI technology and of actual operational deployment of its ALI technology and results semi-annually beginning October 1, 2000 and continuing through October 1, 2003.

III. BACKGROUND

6. One of the Commission's statutory mandates under Communications Act is "promoting safety of life and property through the use of wire and radio communication."[2] To help achieve this mandate, the Commission has in this docket adopted requirements that cellular, broadband personal communications systems (PCS), and certain Specialized Mobile Radio (SMR) licensees implement 911 and E911 services, pursuant to our authority under Sections 301 and 303(r) of the Act.[3] In October 1999, Congress ratified and extended the Commission's efforts in this regard by enacting the Wireless Communications and Public Safety Act of 1999 (911 Act).[4] The purpose of the 911 Act is to enhance public safety by encouraging and facilitating the prompt deployment of a nationwide, seamless communications infrastructure for emergency services that includes wireless communications.[5]

7. In 1996, the Commission initially adopted rules to stimulate the application of wireless technology to improving emergency 911 systems.[6] Most importantly, it required wireless carriers not just to deliver 911 calls to emergency dispatchers, but also to provide E911 service, which includes reporting the location of the emergency call. The E911 requirements were divided into two phases. Phase I requires wireless carriers to deliver the telephone number of the handset originating a 911 call, and the location of the cell site or base station receiving the 911 call, to the designated PSAP.[7] Phase II requires carriers to deliver more specific latitude and longitude location information to the PSAP.[8] The Commission recognized at the time that implementing E911 Phase II within five years, by October 1, 2001, was ambitious. Research, testing, and development requiring coordinated efforts by public safety organizations, wireless carriers, location technology vendors and equipment manufacturers were all necessary to produce technologies capable of pinpointing the location of wireless 911 callers.

8. During the course of this proceeding, we have revised our rules on occasion to reflect progress, and promote competition, in the development of wireless location technologies, as well as to facilitate compliance with the implementation schedule that we have established.[9] In the *E911 Third*

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[2] Section 1 of the Communications Act, 47 U.S.C. § 151.

[3] 47 U.S.C. §§ 301 and 303(r). *See* Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 18676, 18682 (1996) (*E911 First Report and Order*).

[4] Wireless Communications and Public Safety Act of 1999, Pub. L. No. 106-81, enacted Oct. 26, 1999 (911 Act).

[5] 911 Act at Section 2(b).

[6] *See generally E911 First Report and Order*, 11 FCC Rcd 18676.

[7] *E911 First Report and Order*, 11 FCC Rcd at 18708-18710.

[8] *Id.* at 18710-18712. The Commission originally specified that wireless carriers must provide the location of a 911 call by longitude and latitude within a radius of 125 meters using root mean square methodology.

[9] *See, e.g.,* Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Memorandum Opinion and Order*, 12 FCC Rcd 22665 (1997) (*E911 Reconsideration Order*); Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, *Second Memorandum Opinion and Order*, 14 FCC Rcd 10954 (1999) (*E911 Second MO&O*).

Report and Order last year, we revised our rules to better allow emerging handset-based location technologies to compete with network-based technologies.[10] We recognized that carriers relying on a handset-based solution would not be able to provide ALI for all 911 calls in a specific area as of a fixed date because of the need to upgrade or replace older handsets in use.[11] Thus, we established a separate set of accuracy and deployment requirements applicable to handset-based solutions. Handset-based solutions are held to tighter accuracy requirements (50 meters for 67 percent of calls, 150 meters for 95 percent of calls) but are allowed to be phased-in over time, as new or upgraded handsets are put in service, until full deployment is reached. We also established a more accelerated schedule for handset deployment in areas where a carrier has received a request for Phase II deployment from a PSAP.

9. Specifically, the phase-in schedule for handset-based solutions set by *the E911 Third Report and Order* provides that:

- Without respect to any PSAP request for Phase II deployment, the carrier shall:

    1. Begin selling and activating ALI-capable handsets no later than March 1, 2001;

    2. Ensure that at least 50 percent of all new handsets activated are ALI-capable no later than October 1, 2001; and

    3. In addition to the 50 percent requirement, ensure that at least 95 percent of all new digital handsets activated are ALI-capable no later than October 1, 2002.

- Once a PSAP request is received, the carrier shall, in the area served by the PSAP:

    1. Within six months or by October 1, 2001, whichever is later:

        a. Ensure that 100 percent of all new handsets activated are ALI-capable;

        b. Implement any network upgrades or other steps necessary to locate handsets; and

        c. Begin delivering to the PSAP location information that satisfies Phase II requirements.

    2. Within two years or by December 31, 2004, whichever is later, undertake reasonable efforts to achieve 100 percent penetration of ALI-capable handsets in its total subscriber base.

10. In the *E911 Third Report and Order*, we also slightly revised the accuracy and reliability requirements for network-based solutions. Network-based solutions (which provide ALI for all handsets, not simply those that are ALI-capable) are allowed to meet a less stringent accuracy requirement (100 meters for 67 percent of calls, 300 meters for 95 percent). In addition, we modified the deployment schedule for carriers employing a network-based solution, requiring a carrier to provide ALI to 50

[10] *See E911 Third Report and Order*, 14 FCC Rcd at 17388.

[11] *Id.* at 17391.

percent of callers in its coverage area within six months of a PSAP request and to 100 percent of callers within 18 months of that request. In addition, the *E911 Third Report and Order* established a requirement that all wireless carriers must submit to the Commission no later than October 1, 2000 a report on their plans for implementing Phase II.[12]

11. Three petitions for reconsideration of the *E911 Third Report and Order* were filed.[13] All three of these petitions are addressed in this Order.

IV. DISCUSSION

A. Phase-In Schedule for Handset-Based Solutions

12. **Background.** A reconsideration petition filed jointly by handset manufacturers Nokia, Inc. and Motorola, Inc., contends that the *E911 Third Report and Order* set an overly aggressive deployment schedule for the introduction of handset-based ALI technologies for which there is inadequate support in the record.[14] The petitioners claim that this schedule will place a tremendous burden on manufacturers' design, development, and production resources without tangible benefit to the public.[15] Nokia and Motorola question whether sufficient quantities of ALI-capable handsets can be manufactured, tested, and made available for carriers to comply with the current deployment schedule.[16] They also contend that delays in the Commission's issuance of guidance regarding ALI accuracy testing and verification have delayed development of ALI-capable handsets.[17]

13. In a later *ex parte* filing, Nokia and Motorola, joined by another major handset manufacturer, Ericsson, request that the Commission substantially relax the handset deployment schedule.[18] They argue that carriers should only be required to begin selling and activating ALI-capable handsets 18 months after the date on which they have made their technology choices known to the FCC.[19] If the current October 1, 2000 report date were maintained,[20] under this proposal the date on which carriers would be required to begin distribution of ALI-capable handsets would be April 1, 2002. The handset manufacturers go on to propose that one year after this initial rollout date (April 1, 2003 or two and a

[12] *Id.* at 17427-17428.

[13] Parties filing reconsideration petitions include Aerial Communications, Sprint PCS, and Nokia, Inc. and Motorola, Inc., filing jointly. Oppositions, comments and reply comments filed in response to the reconsideration petitions are listed in Appendix A.

[14] *See* Petition for Reconsideration of Nokia, Inc. and Motorola, Inc. at 2 (Nokia and Motorola Petition).

[15] *Id.*

[16] *Id.* at 5.

[17] Nokia and Motorola Reply Comments at 6-7.

[18] Motorola, Nokia, and Ericsson May 25 *Ex Parte* Comments.

[19] *Id.* at 4.

[20] Nokia and Motorola have also requested that we delay the October 1, 2000 reporting date. *See* Nokia and Motorola Reply Comments at 7-8.

half years after the October 1, 2000 report date) carriers would be required to ensure that at least 25 percent of new handsets activated are ALI-capable.[21] The manufacturers propose the following subsequent dates and activation benchmarks: two years after the initial rollout date (April 1, 2004), 50 percent of new handsets activated are ALI-capable; three years after the initial rollout date (April 1, 2005) 100 percent of new handsets activated are ALI-capable; and, by a "date certain" carriers shall undertake reasonable efforts to ensure that substantially all subscribers have ALI-capable handsets.[22] Nokia and Motorola also suggest that the location accuracy requirements for handset-based technologies may need to be modified, dependent on the Commission's actions concerning accuracy verification policies.[23]

14. AT&T Wireless, BellSouth Cellular, GTE Wireless, Nextel, and U.S. West Wireless filed comments in support of revising and delaying the handset phase-in schedule.[24] SnapTrack also initially supported allowing some additional time for carriers to meet our activation levels, contending that the requirement that 95 percent of all digital handsets activated be ALI-capable by October 1, 2002 is unrealistic.[25] Subsequently, however, SnapTrack claimed that technology currently is available to meet the mandate and that only very minor adjustments to the implementation schedule were necessary to make compliance possible and practical.[26] KSI, Inc., the Association of Public-Safety Communications Officials (APCO), and jointly the National Emergency Number Association (NENA) and the National Association of State Nine One One Administrators (NASNA) filed comments in opposition to delay in the handset phase-in schedule.[27]

15. Several parties also raise concerns about the separate schedule for ALI-capable handset deployment triggered by a PSAP request, including questions about how to interpret the obligation that this schedule imposes on carriers.[28] Sprint argues that this schedule is not workable as a practical matter, because of the difficulties of tracking Phase II requests made by thousands of PSAPs and matching this information with a customer's billing address, especially given the multiple distribution channels

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[21] Motorola, Nokia and Ericsson May 25 *Ex Parte* Comments at 5.

[22] *Id.* This schedule is significantly more extended than the phase-in Nokia and Motorola initially requested in their reconsideration petition. *See* Nokia and Motorola Petition at 2. The petition proposed the following schedule, where no PSAP request had occurred: October 1, 2001: 25 percent of new handsets ALI-capable; October 1, 2002: 50 percent ; October 1, 2003: 75 percent; October 1, 2004: 95 percent. Nokia and Motorola did not request any change in the deployment schedule following PSAP requests for Phase II.

[23] Nokia and Motorola Petition at 6.

[24] *See* AT&T Wireless Reply Comments at 1-2; BellSouth Cellular Reply Comments at 3; GTE Comments at 6; Nextel Comments at 3-7; U.S. West Wireless Comments at 4.

[25] SnapTrack Comments at 4-5.

[26] Qualcomm June 21 *Ex Parte* Comments at 1. SnapTrack was acquired by Qualcomm in March 2000 after the petitions and initial comments in this proceeding were filed. *See* "Qualcomm Completes Acquisition of Wireless Location Leader SnapTrack," News Release (March 2, 2000), available at http://www.qualcomm.com/cda/pr//view/0,1565,252,00.html.

[27] APCO Opposition at 2-4; KSI Opposition at 2-3; NENA and NASNA Reply Comments at 2-4.

[28] *See, e.g.,* SnapTrack Comments at 5; U.S. West Comments at 7; CTIA Reply Comments at 4-5.

employed by a national carrier.[29] According to Sprint, the only way to ensure compliance with the phase-in rule would be to sell only Global Positioning System (GPS) handsets effective October 1, 2001, which would limit consumer choice and potentially force consumers to pay high prices for first generation handsets.[30]

16. Some wireless carriers also contend that the requirement that carriers undertake reasonable efforts to achieve 100 percent penetration of ALI-capable handsets by their customers by December 31, 2004, or two years after a PSAP request, is both overly demanding and vague.[31] Sprint suggests that the "reasonable efforts" approach, to the extent it involves carrier discounts on service or handsets, raises legal questions of the Commission's authority and the constitutional question of a taking without compensation under the Fifth Amendment.[32] Qualcomm proposes that the rules be modified to clarify that carriers are in compliance if they timely place orders for ALI-capable handsets with their suppliers in sufficient quantities to meet the deployment obligations under the rules.[33]

17. **Discussion**. The Commission's wireless E911 rules are intended to meet important public safety needs as quickly as reasonably possible. The implementation schedule contained within these rules is based on a five-year schedule proposed in 1996 by a coalition of public safety organizations, and CTIA, representing certain wireless carriers, manufacturers, and others in the wireless industry.[34] Since that time, the schedule has stimulated and guided efforts to develop and perfect wireless location technologies that can comply with our rules. While significant development and testing efforts for ALI technologies are still ongoing, we find that a wide range of ALI solutions that offer wireless carriers a reasonable prospect for compliance with our E911 Phase II requirements either are currently, or will soon be, available.

18. *Availability of ALI Solutions*. At the time of the adoption of our current rules, substantial evidence existed establishing that ALI solutions had been tested successfully in field trials.[35] For example, a test of a GPS handset-based solution conducted in cooperation with the King County, Washington E-911 Program Office between June and November 1998 reported a location accuracy of 45.7 meters (150 feet) or less for 74 percent of calls, and projected that accuracy would improve further with next generation GPS chips.[36] SnapTrack also reported successful results in several trials of its GPS

[29] Sprint Petition at 7.

[30] *Id.* at 8-9.

[31] *See, e.g.,* SnapTrack Comments at 5-6.

[32] Sprint Petition at 8-9, n.27.

[33] Qualcomm March 16 *Ex Parte* Comments at 4.

[34] *E911 First Report and Order,* 11 FCC Rcd at 18688.

[35] *See, e.g.,* Public Notice, Technical Roundtable On Implementation Of Automatic Location Identification ("ALI") For Enhanced 911 ("E911") Technologies To Be Held June 28, 1999, DA 99-1141 (June 9, 1999); *see also* the Commission's E911 web page, http://www.fcc.gov/e911/roundtables.html.

[36] Integrated Data Communications, Inc. (IDC), Report of Findings, A Study of Stand-Alone Global Positioning System Determined Location, Cellular Communications, Call Path Signaling and Routing, March 1999, at 1-3, 7-14. The King County trial reported successful results for four air interfaces: CDMA, N-AMPS, AMPS, and iDEN. *Id.* at 7-20, Fig. 7-10.

handset solution, and TruePosition of its network-based approach.[37]

19. Since that time, wireless carriers, manufacturers, and location technology vendors have been more extensively involved in tests and trials of ALI solutions. Whereas, a year ago, there was some question of whether ALI solutions would be available for all air interfaces, particularly Code Division Multiple Access (CDMA), since then successful trials have been reported for at least two separate network-based CDMA solutions.[38] In addition, the State of Montana participated in and audited a trial of U.S. Wireless's network-based location fingerprinting technology for Advanced Mobile Phone Service (AMPS) handsets in Billings, Montana from May through August 1999 and reported that the system overall provided an accuracy of 85.7 meters for 67 percent of single location fixes.[39] With continuous tracking and improved methods for selecting the most reliable location estimate from within a set of estimates, overall accuracy improved to about 20 meters.[40] Similar performance levels were achieved in a range of environments, including light urban, industrial, residential, and suburban/rural.[41] Other companies such as TruePosition, Cell-Loc, and SigmaOne have also announced successful trials of location solutions.[42]

20. Progress also has been made in the development of handset-based solutions. For example, SiRF Technologies, Inc. has been offering GPS chips for sale since the third quarter of 1999, including chips more advanced than those tested successfully in the King County, Washington trial.[43] Qualcomm has announced that it will begin delivering commercial quantities of CDMA chipsets that include a GPS location capability to handset manufacturers by the first quarter of 2001 and chipsets with both a GPS

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[37] *See* transcripts at http://www.fcc.gov/e911/roundtables.html.

[38] For example, TruePosition conducted a trial with Bell Atlantic Mobile in Pennsylvania, *see* http://www.trueposition.com/press16.html; and U.S. Wireless conducted a similar trial in Baltimore for both AMPS and CDMA, *see* http://www.uswcorp.com/USWCMainPages/PressRel/pr62.htm. *See also* Summary of FCC E911 Phase II Reconsideration Proceeding Multi-Party Meeting July 6, 2000, filed August 10, 2000, at 6-7 (FCC July 6 Meeting *Ex Parte* Summary).

[39] State of Montana Department of Administration, Information Services Division, Montana Wireless E9-1-1 Trial: Final Report, May 22, 2000 at 34 (Montana Final Report).

[40] *Id.* at 35. The guidelines for Phase II location verification and testing developed by the Office of Engineering and Technology (OET) and the Wireless Telecommunications Bureau permit use of multiple fixes over a period of up to 30 seconds to be used in measuring the accuracy of ALI solutions. *See* OET Bulletin No. 71, Guidelines for Testing and Verifying the Accuracy of Wireless E911 Location Systems, April 12, 2000 at 4 (*OET Guidelines*).

[41] Montana Final Report at 34-35.

[42] *See* FCC July 6 Meeting *Ex Parte* Summary at 5-7; *see also* Letter from Philip L. Verveer and David M. Don, Willkie, Farr & Gallagher, to Magalie Roman Salas, Secretary, FCC, July 24, 2000 (TruePosition July 24 *Ex Parte* Letter); Letter from Dr. Michel Fattouche, President and CEO, Cell-Loc, Inc., to Jim Schlichting, Deputy Bureau Chief, Wireless Bureau, FCC, June 29, 2000 (Cell-Loc June 29 *Ex Parte* Letter); News Release, "SigmaOne Announces Successful TDMA-AMPS Location Trials," April 26, 2000, located at <http://www.sigma-1.com/prsuccess.htm>.

[43] *See* SiRF web site, http://www.sirf.com/ssii.htm.

capability and advanced packet data capabilities in the third quarter of 2001.[44] In meetings with Commission staff, location technology vendors have represented that their solutions are ready for deployment and meet the Commission's accuracy requirements.[45]

21. For their part, handset manufacturers and many wireless carriers claim that no currently available ALI technology meets the accuracy mandates and that it will be impossible to produce GPS-capable handsets in time to meet the handset deployment schedule. Their concerns appear to focus largely on performance in specific difficult environments (*e.g.*, urban canyons and inside buildings[46]) or with costs.[47] Our rules recognize, however, that location information may not be accurate or even available in some cases, by providing that location accuracy requirements must be met for 95 percent of wireless 911 calls, rather than for all such calls. Thus, while certain parties have raised concerns about how 911 calls from certain challenging environments will affect a carrier's ability to comply with our accuracy and reliability requirements, no party has presented evidence to suggest that such calls might make up a five percent wireless 911 calls. In fact, some evidence suggests the contrary.[48]

22. Further, the Phase II rules are intended to be applied in a manner that takes into account practical and technical realities.[49] The guidelines issued by OET and the Wireless Telecommunications Bureau follow this approach.[50] For example, in addition to the general reliability requirement, which excludes the worst five percent of calls, the OET Guidelines confirm that in testing performance carriers need not include locations where wireless calls cannot be completed.[51] Such locations are likely to include many environments where it is difficult to provide location identification, such as from within high-rise buildings, parking garages, tunnels, and in remote areas. Accuracy under the OET Guidelines also may be based upon multiple fixes over a period of as long as 30 seconds, thereby allowing substantial improvements in accuracy over single fixes.[52] Further, the OET Guidelines also express a

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[44] Letter from Veronica M. Ahern, Nixon, Peabody to Magalie R. Salas, Secretary, FCC, July 7, 2000, at 2 (Qualcomm July 7 *Ex Parte* Letter). Qualcomm also contends that a manufacturer that supplies chipsets for Time Division Multiple Access (TDMA) and GSM devices intends to develop a chipset incorporating the GPS capability in time to allow delivery of handsets incorporating this chipset by the third quarter of 2001, but has not provided any evidence in support of the contention. *Id.*

[45] *See generally,* Summary of FCC E911 Phase II Reconsideration Proceeding Multi-Party Meeting June 29, 2000, filed July 24, 2000 (FCC June 29 Meeting *Ex Parte* Summary); FCC July 6 Meeting *Ex Parte* Summary.

[46] *See, e.g.*, BellSouth May 16 *Ex Parte* Comments at 2; Motorola June 21 *Ex Parte* Comments at 8.

[47] Letter from Thomas P. Van Wazer and James P. Young, Sidley & Austin, to Magalie Roman Salas, Secretary, FCC, June 29, 2000 at 6-7 (USCC Request).

[48] VoiceStream June 15 *Ex Parte* Comments at 8 (data for wireless 911 call distribution in five major markets indicating that only one to six percent of all wireless 911 calls are from urban areas, including all types of urban environments).

[49] *E911 Third Report and Order*, 14 FCC Rcd at 17426.

[50] *See generally OET Guidelines.*

[51] *Id.* at 3.

[52] *Id.* at 4. *See, e.g.*, Montana Final Report at 34.

preference for basing testing on locations from which 911 calls actually are placed.[53] Under this approach, the statistical impact of calls from many difficult environments may be further reduced, if 911 calls are rarely made from those locations. This reasonable, practical approach to ALI testing focuses on what is technically possible and attempts to recognize the needs of actual wireless 911 callers. It is an approach that should reduce, if not eliminate, carrier concerns that ALI systems that have demonstrated the capability to comply with the rules might nonetheless be found in violation.

23. In this light, we conclude that there are a number of location technologies that are currently, or will soon be, available to carriers and that these technologies provide carriers with a reasonable prospect of meeting the Commission's accuracy and reliability requirements for Phase II. While it is possible that the plans and claims of some firms may prove overly optimistic, the number of location technology providers present in the market should ensure that a choice of effective ALI solutions should be available to all wireless carriers. Because this technology is evolving rapidly, and may be significantly affected by improvements in computer, semiconductor, and software technologies, as well as increased operational experience, actual performance for certain of the location technology solutions may well be even better by the time deployment is required next year.

24. *Schedule for Handset-Based ALI Deployment.* In view of the current and anticipated availability of ALI solutions that will permit compliance with the Phase II schedule, we do not believe that substantial delays in the handset deployment schedule, such as those requested by Nokia and Motorola, are justified. The Phase II rules were originally adopted in 1996, and at that time established an October 2001 timeframe for provision of Phase II location information. Thus, all industry participants, including handset manufacturers, have had a substantial period of time in which to prepare for Phase II. Moreover, the Commission indicated in December 1997 that it intended to permit the use of handset-based technologies for Phase II compliance, an intention that was facilitated by the adjustments in the deployment schedule for handset-based technologies made in the September 1999 *E911 Third Report and Order*.[54]

25. In adopting the *E911 Third Report and Order,* we intended to provide an opportunity for wireless carriers to use handset-based technologies to provide Phase II, if such technologies could be developed in a timely fashion. While we sought to encourage competition among location technologies, we did not, however, intend to establish an entitlement for wireless carriers to use handset-based technologies. From their filings, it appears that Nokia, Motorola, and Ericsson do not plan to develop GPS-capable handsets until they receive firm orders from carriers, and that it may take them an additional 18 months to begin delivering those handsets. While this situation is unfortunate and may reduce the options available to wireless carriers for complying with the Phase II mandate, as noted above, other ALI technologies are currently available that provide a reasonable prospect for compliance. In addition to various network-based technologies, GPS-capable handsets produced by other manufacturers may be available substantially sooner than the timeframes estimated by Nokia, Motorola and Ericsson.[55]

26. We find that the schedule proposed by the manufacturers would substantially reduce the

[53] *OET Guidelines* at 4.

[54] *E911 Second Report and Order,* 12 FCC Rcd at 22725. The Commission specifically stated it would consider proposals to phase in implementation of ALI for these technologies.

[55] *See supra* para. 20.

public safety benefits of Phase II, leaving many wireless 911 callers without the benefits of ALI for a greatly extended period of time. Such delay also would compound the increasing burdens that rapidly growing numbers of wireless 911 calls impose upon PSAPs. Emergency calltakers now must devote critical time and resources to questioning wireless 911 callers to determine their location. Emergency response teams must often waste critical minutes - or longer - searching for those callers.

27. Further, we determine that any wholesale deferral of the handset deployment schedule would be unfair to the many competitors who have been working to timely develop and market other ALI solutions. While we have modified our rules as necessary to promote competition, we have sought to maintain technological and competitive neutrality in so doing. A radical extension of the handset phase-in schedule, as proposed by Nokia, Motorola and Ericsson, would amount to a decisive and unwarranted preference for handset-based technologies, substantially altering the terms of the competition between technologies.

28. Some comments suggest that allowing more time for the phase-in of handset-based solutions will lower the cost to consumers of ALI-capable handsets, because prices for these handsets are likely to decline over time.[56] While this may be true to some extent, prices also are likely to decline rapidly only after high volume distribution occurs; thus, a relatively rapid deployment schedule should help to accelerate that process.

29. We also are not persuaded that retaining the current schedule will impose higher costs on carriers that must choose a network-based solution for E911. Indeed, at least one network-based ALI provider has proposed offering to provide ALI for 911 calls to carriers without charge, with the costs to be recovered from commercial applications of location technology.[57] Another location technology vendor is pursing a similar business model under which it would provide location information as a service to carriers, and would utilize other location information gathered from wireless telephones for commercial applications.[58] Under these types of arrangements, carriers would incur few, if any, network investment costs.

30. In sum, we conclude that the public interest and the public safety do not support a substantial delay in the current handset deployment schedule. Even if some major handset manufacturers prove unable or unwilling to produce ALI-capable handsets in the near future, we believe the public safety will be better served if carriers are required to deploy other available ALI solutions, including GPS handsets that may be available from other manufacturers, according to the timetable we set herein. To allow the lengthy delay requested by some parties would, in our view, jeopardize the progress made to date in the development of ALI solutions.

31. *Elimination of Separate PSAP-Request Track for ALI-Capable Handset Activation.* While we do not believe that substantial changes in the current schedule are justified, we do find good cause to make some changes in the handset schedule to allow a more realistic opportunity for deployment of handset-based solutions. For example, we concur with Sprint's contention that the more accelerated handset deployment schedule following a PSAP request appears to be at least difficult, if not impossible,

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[56] Sprint Petition at 4-5.

[57] *See* Cell-Loc June 29 *Ex Parte* Letter at 2. *See also* FCC July 6 Meeting *Ex Parte* Summary at 5.

[58] *See* U.S. Wireless web site, http://www.uswcorp.com/USWCMainPages/PressRel/pr62.htm. *See also* FCC July 6 Meeting *Ex Parte* Summary at 6-7.

to implement. As it stands, this rule would require carriers to continuously monitor the status of PSAP requests for Phase II compliance throughout the country, which may occur on widely varying schedules. In addition, carriers would need to find some mechanism to correlate a customer's location with the Phase II status of the corresponding area. Carriers would also have to ensure that all of their sales and distribution channels have current information and follow similar procedures in distributing ALI-capable handsets. Such efforts are likely to be difficult, time-consuming, and expensive without any corresponding public interest benefit.

32. Moreover, carrier efforts to comply with the PSAP request-triggered implementation schedule are likely to cause confusion among customers, who might find it difficult to understand and accept that some handset models are not available to them because of where they live. While it is desirable as a matter of public safety to target the sale of ALI-capable handsets in areas where PSAPs are able to use location data, market forces, consumer preferences, and carrier efforts will, to some degree, achieve this goal. Because ALI-capable handsets may be more expensive initially than other handsets, customers are more likely to purchase them in areas where local PSAPs are able to use this capability in the event of an emergency.[59] In addition, carriers should have substantial incentives to direct their marketing efforts for ALI-capable handsets to areas in which PSAPs are capable of receiving Phase II information, to most effectively and profitably achieve the deployment goals. For these reasons, we eliminate the separate deployment track for ALI-capable handsets triggered by a PSAP request.

33. *Extension of Initial Distribution Date for ALI-Capable Handsets.* We also conclude that a relatively brief extension of the date by which wireless carriers choosing a handset-based approach to ALI compliance must begin distributing ALI-capable handsets is in the public interest. In view of certain representations in the record of this proceeding, we believe that the current March 1, 2001 date may be difficult to meet.[60] We accordingly revise the schedule to require that carriers employing a handset-based solution begin making ALI-capable handsets available for sale no later than October 1, 2001. This schedule should ensure that customers electing to take advantage of the enhanced safety of these handsets may purchase them by October 1, 2001, when the first PSAPs may begin using this information for 911 calls. In effect, this requirement should stimulate competition and marketing of ALI capability while imposing minimal burdens on manufacturers and carriers. To comply with this requirement, manufacturers need not provide, nor carriers sell and activate, any particular volume of handsets. Further, these initial handsets need not be the same types or brands as those that carriers plan to offer later in the year, or in future years.[61] Rather, the rule requires only that carriers undertake an essential preliminary step for implementation of a handset-based solution, by actually offering ALI-capable handsets by October 1, 2001. By promoting public awareness of handset-based ALI capabilities,

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[59] Being able to call for and receive help in an emergency is one of the most important reasons for purchasing a wireless phone. *See, e.g.,* Peter D. Hart Research Associates, The Evolving Wireless Marketplace, February 1998 at 3 (personal safety cited in this survey as the primary use of wireless phones by 25 percent of consumers); Polk Public Opinion Strategies, National Survey, July 31-August 4, 1997 (79 percent of respondents cite additional safety and security as the most important reason for owning a wireless phone), which may be found at http://www.wow-com.com/consumer/highway/reference/e911poll.cfm.

[60] *See* Qualcomm July 7 *Ex Parte* Letter at 2, indicating that production for its MSM3300 and MSM5100 chipsets, which incorporate GPS capability, will ramp up in the first quarter, and the third quarter, of 2001, respectively.

[61] At least one vendor already is offering a handset incorporating GPS technology that reportedly delivers location information to PSAPs when 911 is dialed. *See* http://www.fonefinder.com.

this initial distribution requirement also should help accelerate complete deployment of ALI-capable handsets.

34. *New Activation Dates and Benchmarks.* For similar reasons, we also modify the other ALI-capable handset benchmarks in our current rules to provide a more reasonable opportunity for handset manufacturers and wireless carriers to test and market ALI-capable handsets. Under the revised schedule, a carrier employing a handset-based solution must achieve a 25 percent level of ALI-capable handset activations by December 31, 2001, a 50 percent activation level by June 30, 2002, and a 100 percent activation level for new, digital handsets by December 31, 2002.[62] This revised schedule gives manufacturers and carriers some additional time to evaluate and take into account the OET Guidelines for verification and testing of ALI technologies, which were released slightly later than originally targeted, and to complete any necessary standards, development, and testing work. The schedule we adopt is similar to that proposed last year by a public safety association, APCO.[63] While any delay in the phase-in schedule is undesirable, the relatively brief extension of the handset activation schedule we adopt today should provide additional flexibility to wireless carriers wishing to use handset-based technologies to comply with our Phase II requirements, without resulting in unreasonable or unnecessary delay.[64] By allowing this additional time, carriers will have over a year to begin activating ALI-capable handsets, nearly 16 months before they are subject to any volume sales requirements, and almost two and a half years to comply with the 100 percent activation level for new digital ALI-capable handsets.[65]

35. Coincident with adjusting the handset deployment schedule and eliminating the separate deployment schedule following PSAP requests, we also modify the activation level for new ALI-capable digital handsets that carriers must achieve by December 31, 2002, from 95 percent to 100 percent. This modification is intended to track the activation level for new handsets that we previously required in areas where there has been a PSAP request for Phase II. The 95 percent deployment level would have allowed a small proportion of new digital handsets to be sold and activated without ALI capability in areas where there was no PSAP request. This small exception would reduce the public safety benefits of Phase II and make it more difficult to achieve full deployment, especially as new digital handsets might have relatively long future useful lifespans. The December 31, 2002 date should give manufacturers and carriers adequate lead-time to prepare a full line of ALI-capable digital handsets. As is the case

[62] The new handset activation benchmarks apply only to new handsets, not to new activations of older model or refurbished handsets (*i.e.*, when a customer switches wireless service from one wireless carrier to another but retains his or her current handset, that "new activation" of service need not be included in the total of the wireless carrier's new handset activations for purposes of measuring ALI-capable handset activation benchmarks). We clarify, however, that if a carrier's handset solution involves a stand-alone attachment that provides ALI, rather than an integrated ALI handset approach, the sale of such a stand-alone attachment to an existing subscriber would count towards the carrier's compliance with the ALI-capable handset activation requirements. Mere availability of a stand-alone device that may be used with a particular handset, however, would not count towards compliance with the activation requirements.

[63] APCO Further Comments at 2-3, May 25, 1999.

[64] For example, it appears that the revised schedule will give handset manufacturers using Qualcomm chipsets additional time that may be necessary to meet the Commission's requirements. *See supra* note 60.

[65] We recognize that although we are providing additional time to carriers to meet the new activation dates and benchmarks, the interim benchmarks of 25 percent and 50 percent ALI-capable handset activations may be difficult to measure. We emphasize that in evaluating compliance, we will look at the reasonableness of a carrier's measurement methodology and the circumstances surrounding the measurement.

currently, this requirement applies only to the first activation of newly purchased handsets, not to handsets already in use. Consumers will continue to be able to use their existing phones, and to switch service to other carriers or to other operating areas.

36. *Revisions to Full Penetration Requirements.* We also conclude that the final step in the current schedule for handset solutions should be modified in two respects. First, we conclude that it is reasonable to extend the timeframe for carriers to reach full penetration of ALI-capable handsets by an additional year, by moving the deadline from December 31, 2004 to December 31, 2005. We take this step in part because adjustments to the ALI-capable handset activation schedule are likely to delay the replacement of non-ALI-capable handsets. Moreover, we concur with those commenters that argue that the current schedule may have been overly ambitious, in view of consumers that may wish to continue to use their non-ALI capable handsets, even if newer handsets provide location as well as other advanced features.

37. Second, we modify our rules to require that carriers achieve 95 percent penetration of ALI-capable handsets by the December 31, 2005 date, rather than that they employ "reasonable efforts" to achieve 100 percent penetration. The requirement that carriers use "reasonable efforts" to reach 100 percent, though intended to provide flexibility to carriers, instead appears to have generated uncertainty. Carriers express concern that they cannot be sure of what is expected of them or how extensive their efforts must be to comply with the rule. The clearer requirement of 95 percent penetration should allow carriers to develop plans to move to virtually full penetration without concerns that such plans might still be considered to fall short of reasonable efforts.

38. *Additional Issues.* We decline, however, to make other adjustments to our rules suggested by petitioners and commenters. For example, Qualcomm suggests in an *ex parte* comment that carriers be deemed in compliance with the handset deployment rules if they have placed timely orders for ALI-capable handsets.[66] While this suggestion has the possible merit of recognizing the essential role that manufacturers play in achieving timely deployment of ALI, we lack any effective mechanism to guarantee that handset manufacturers would in fact meet those orders on schedule, because manufacturers are not directly subject to the requirements of the Phase II rules. Although Qualcomm suggests that carriers be obliged to notify us of any delay in delivery of ALI-capable handsets,[67] such a requirement would do nothing to ensure timely delivery or deployment of such handsets. In the absence of effective rules applicable to handset manufacturers, we conclude that the adoption of Qualcomm's proposal might result in an indefinite delay in actual ALI deployment.[68] While we decline to adopt this proposal, as we discuss more fully below, we will consider the placement of timely handset orders by carriers as a significant indication of good faith, concrete actions taken toward compliance with the rules, when considering waiver requests or enforcement action.

39. Some commenters also propose that we adopt uniform rules, including uniform accuracy standards, regardless of the technology used. Aerial, supported by CTIA and PCIA, argues that disparate standards for network-based and handset-based technologies serve no logical public safety purpose and

[66] Qualcomm March 16 *Ex Parte* Comments at 4.

[67] *Id.*

[68] As previously discussed, some major handset manufacturers may not even begin delivering ALI-capable handsets for more than 18 months, with full deployment of ALI-capable handsets up to three years later. *See* Motorola, Nokia, and Ericsson May 25 *Ex Parte* Comments at 4.

destroy competitive neutrality.[69] APCO and NENA oppose this proposal, to the extent it would permit lower accuracy standards for handset-based solutions, observing that tighter accuracy requirements for handset-based solutions were part of a bargain proposed by advocates of the ALI-capable handset phase-in.[70]

40. As we explained in the *E911 Third Report and Order*, while we intend the Phase II rules to be technologically and competitively neutral, this intention does not mean that the rules must or should be the same for all technologies.[71] Accuracy is only one of several important means by which locations technologies contribute to the public safety. The rate and extent of deployment, reliability, encouragement of further improvements, and cost are other relevant factors. Moreover, a rule that is ostensibly neutral on its face may in fact favor one technology and preclude another, however valuable to public safety. Such was the case with our initial Phase II rules, where the use of a single implementation date for the deployment of all ALI technologies unintentionally precluded handset-based solutions, which cannot practically be implemented in all handsets at one time but can, it appears, provide better accuracy in some situations. Thus, we changed our rules to permit the phase-in of handset-based solutions, but sought to offset the effects of delay by requiring that those solutions provide greater accuracy.[72]

41. Eventually, it may be possible to adopt unified rules, with a single accuracy requirement for all technologies, as technologies improve and as we move beyond the initial installation period for ALI technologies.[73] To the extent possible, we would prefer to move toward a uniform rule for all Phase II solutions. At present, however, we continue to believe that public safety, and the public interest, is best served by our current pragmatically disparate Phase II rules.

B. Waiver Requests

42. In this section, we discuss our general approach toward possible requests for waiver of the E911 Phase II requirements, and address several such requests that are part of the record in this reconsideration proceeding.

43. Generally, the Commission's rules may be waived for good cause shown.[74] Waiver is only appropriate, however, if special circumstances warrant a deviation from the general rule, and such a deviation will serve the public interest.[75] In the case of E911, we have recognized that there could be instances where technology-related issues or exceptional circumstances may mean that deployment of

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[69] Aerial Petition at 4; CTIA Reply Comments at 3; PCIA Comments at 6.

[70] NENA Reply Comments at 4, 5; APCO Reply Comments at 1, 2.

[71] *E911 Third Report and Order,* 14 FCC Rcd at 17425.

[72] *Id.*

[73] *See* VoiceStream June 15 *Ex Parte* Comments at 15, indicating that hybrid E-OTD technology can eventually achieve the same 50-meter accuracy level required for handset-based solutions.

[74] 47 C.F.R. § 1.3.

[75] *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) citing *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969).

Phase II may not be possible by October 1, 2001, and indicated that these cases could be dealt with through individual waivers as these implementation issues are more precisely identified.[76]

44. As we have discussed in this Order, ALI technologies are already, or will soon be, available that provide a reasonable prospect for carriers to comply with the E911 Phase II requirements. Waivers thus should not generally be warranted, especially in light of the vital public safety benefits of Phase II. In those particular cases where waivers may be justified, however, broad, generalized waivers should not be necessary and will not be granted. Rather, we expect waiver requests to be specific, focused and limited in scope, and with a clear path to full compliance. Further, carriers should undertake concrete steps necessary to come as close as possible to full compliance (*e.g.*, selecting ALI technologies or vendors, timely placing orders for necessary equipment, performing other necessary preparatory work) and should document their efforts aimed at compliance in support of any waiver requests. Carriers seeking a waiver will be expected to specify the solutions they considered and explain why none could be employed in a way that complies with the Phase II rules. If deployment is scheduled but for some reason must be delayed, the carrier should specify the reason for the delay and provide a revised schedule.

45. We expect wireless carriers to work aggressively with technology vendors and equipment suppliers to implement Phase II, and to achieve full compliance as soon as possible.[77] Carriers should not expect to defer providing a location solution if one is available and feasible. If a carrier's preferred location solution is not available or will not fully satisfy the rules, in terms of accuracy and reliability or timing, the carrier would be expected to implement another solution that does comply with the rules. Further, if no solution is available that fully complies, the carrier would be expected to employ a solution that comes as close as possible, in terms of providing reasonably accurate location information as quickly as possible. It is not sufficient for a carrier to undertake a minimalist approach, in which the carrier conducts certain tests, decides that the tests do not definitively demonstrate that the technologies tested will satisfy the Commission's requirements in all situations, and as a result, declines to implement any ALI solution. In view of the importance of our E911 rules to public safety, we expect to take any steps necessary to ensure that carriers take their obligations seriously, including assessing appropriate penalties on carriers that fail to comply. As noted, in considering the appropriateness of enforcement actions, we will take into account the extent to which carriers have made concrete and timely efforts to comply and to which their failure to do so was the result of factors outside their control.

1. Sprint Waiver Request

46. **Background**. In February 1999, in response to a Wireless Telecommunications Bureau Public Notice, Sprint filed a request for waiver to permit implementation of a handset-based location technology.[78] In its petition, Sprint proposed a phased implementation of handset-based ALI capability, along with a network software solution that would provide more general location information for

[76] *See E911 First Report and Order*, 11 FCC Rcd at 18710, 18718.

[77] We emphasize that the filing of a waiver request does not and will not excuse noncompliance with our E911 rules. Moreover, carriers are obligated to continue best efforts to comply with our rules while a waiver request is pending.

[78] Sprint Spectrum L.P. Waiver Request, February 4, 1999. A number of other carriers filed similar petitions at the same time.

customers with older handsets.[79] In the *E911 Third Report and Order*, we dismissed Sprint's petition as moot, based on the rule changes to permit use of handset-based solutions that we adopted in that order.[80]

47. In its reconsideration petition, Sprint renews its request for approval to pursue a hybrid ALI approach that would combine software-based network and GPS handset solutions to support two different levels of location accuracy.[81] Specifically, Sprint is considering an approach called Forward Link Triangulation (FLT) that would use network software upgrades to provide a baseline level of ALI more precise than Phase I information, for all users of its network.[82] Sprint indicates that it will use its best efforts to deploy this capability ubiquitously throughout its network by October 2001. Sprint proposes to combine this network safety net approach with incorporation of newly developed handset software known as Advanced FLT (AFLT) that would provide even better accuracy.[83] Although Sprint has provided some information on the results of tests of this technology,[84] it has not made a specific commitment regarding the accuracy levels the technology will achieve. Sprint states that most of the new handsets it sells by October 1, 2001 will be equipped with AFLT software.[85] Sprint further proposes to offer its customers the option to obtain even greater location capability by purchasing assisted GPS handsets as soon as they become available.[86] APCO opposes the petition as lacking specific proposals for ALI accuracy and reliability and as relying on a vague, untested, and uncertain technology.[87]

48. **Discussion.** To the extent that Sprint's reconsideration petition raises concerns about the availability of GPS-capable handsets in time to meet the Commission's deployment schedule,[88] we conclude that these concerns have been largely, if not completely, addressed by the adjustments to the handset deployment schedule that we make in this Order. In light of these adjustments, to the extent that Sprint continues to wish to pursue, through its reconsideration petition, a waiver to implement its proposed hybrid FLT/AFLT ALI solution, we deny that request, based on the present record. Although Sprint has outlined some specific proposals with respect to its planned-for compliance, we do not believe that it has provided the kind of specific, focused information suggesting a clear path to full compliance that is necessary before we can find the grant of a waiver in the public interest. For example, Sprint has committed to deploying FLT and AFLT in October 2001, or soon thereafter, but it has not yet provided

[79] *Id.* at 4-5.

[80] *E911 Third Report and Order*, 14 FCC Rcd at 17429-30.

[81] Sprint Petition at 10. *See also* Sprint PCS May 1 *Ex Parte* Comments.

[82] Sprint Petition at 10-11.

[83] *Id.* at 12.

[84] *See* Letter from Jonathan M. Chambers, Vice President, Regulatory Affairs, Sprint PCS, to Magalie Roman Salas, Secretary, FCC, dated July 11, 2000, attaching Qualcomm, Inc. and Lucent Technologies AFLT reports (Sprint July 10 *Ex Parte* Letter).

[85] Sprint Petition at 12.

[86] *Id.* at 12-13.

[87] APCO Opposition at 4-6.

[88] *See* Sprint Petition at 4-9.

specific commitments with regard to the accuracy and reliability levels these solutions can provide.[89]

49. In addition, we are concerned that although Sprint indicates that it will offer customers who desire greater location accuracy the opportunity to purchase GPS-capable handsets as soon as they become available, Sprint has not provided a specific timetable by which it will achieve full compliance with the Commission's accuracy requirements. Our E911 rules do not envision location accuracy as being a product of customer choice; thus, if customers do not select GPS-enabled handsets at a high rate, we are concerned that PSAPs could receive less accurate location data for a lengthy, indefinite period.

50. We commend Sprint for its work towards development of alternative location technologies or other means of achieving compliance with the Commission's E911 Phase II requirements. At this point, however, because Sprint has not provided a more concrete plan for achieving full compliance with the handset accuracy standards, we cannot conclude that the FLT/AFLT solution that Sprint proposes to pursue will serve the public interest. Accordingly, on the present record, we deny Sprint's petition for waiver.

2. VoiceStream Waiver Request

51. **Background.** Like Sprint, in February 1999 Aerial Communications also filed a request for waiver to permit implementation of a handset-based location technology.[90] In its petition, Aerial discussed the possibility of using a non-GPS handset solution, in combination with existing network capabilities to provide better than Phase I-level location information for all calls.[91] In the *E911 Third Report and Order*, we dismissed Aerial's petition as moot, based on the rule changes to permit use of handset-based solutions that we adopted in that order.[92]

52. Unlike Sprint, Aerial did not specifically seek a reconsideration of our denial of its waiver petition, but rather challenged our decision to adopt stricter accuracy standards for handset-based solutions than for network-based solutions.[93] In subsequent *ex parte* presentations in connection with this proceeding, however, Aerial renewed its request for approval to implement a hybrid ALI approach that would involve both network and handset software upgrades.[94] Immediately following the close of the record on the reconsideration petitions in this proceeding, Aerial was acquired by VoiceStream, which has elected to pursue this waiver request.[95]

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[89] *Id.* at 11.

[90] Aerial Communications Inc. Petition to Waive Section 20.18(e) of the Commission's rules, February 5, 1999 (Aerial Waiver Petition).

[91] *Id.* at 2-3, 6.

[92] *E911 Third Report and Order*, 14 FCC Rcd at 17429-30.

[93] *See* discussion *infra* at Section D.

[94] *See* Aerial May 2 *Ex Parte* Comments; VoiceStream June 15 *Ex Parte* Comments.

[95] In this Order, we generally refer to the acquiring company, VoiceStream, as the party in interest that now seeks reconsideration and a waiver. To avoid confusion, however, we refer to "Aerial" in citing pleadings and comments filed under that name.

53. Specifically, VoiceStream proposes to implement a network software solution (NSS) that would make use of existing network capabilities to provide immediate location information for all 911 calls on the network.[96] VoiceStream indicates that the NSS will provide location information with better than Phase I accuracy – within a radial accuracy of 500-1000 meters for 67 percent of calls.[97] VoiceStream explains that for a suburban seven-kilometer inter-site distance (the typical environment within the VoiceStream network) Phase I service would yield a searchable area of approximately 14 square kilometers. The NSS, by contrast, would yield a searchable area of one-half to one square kilometer for 67 percent of calls, 14 to 28 times the accuracy provided by Phase I.[98] VoiceStream commits to implement the NSS throughout its network, without regard to whether it has received any PSAP requests, by the fourth quarter of 2001.[99]

54. In combination with the NSS, VoiceStream proposes to implement a technology called Enhanced Observed Time Difference of Arrival (E-OTD), which requires software upgrades to handsets and associated network upgrades, but which would not involve hardware changes or changes to antenna structures.[100] VoiceStream indicates that E-OTD handsets will be available to meet the Commission's deadlines for handset deployment.[101] VoiceStream indicates that the E-OTD solution would initially provide 100-meter accuracy, in accordance with the Commission's network accuracy standards, and presents evidence that such accuracy is attainable.[102] Further, this accuracy level would, VoiceStream claims, improve to match the 50-meter accuracy requirement for handset-based solutions within two years.[103]

55. **Discussion.** Although VoiceStream has not formally filed a request for waiver of our handset accuracy requirements in order to pursue its proposed NSS/E-OTD approach, we find it appropriate to construe the representations it has made in *ex parte* comments to constitute such a request.[104] Based on the current record, we conclude that it is appropriate to grant VoiceStream a waiver

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[96] VoiceStream June 15 *Ex Parte* Comments at 3-4.

[97] Letter from Robert A. Calaff, Corporate Counsel, VoiceStream Wireless, to Magalie Roman Salas, Secretary, FCC, July 31, 2000. (VoiceStream July 31 *Ex Parte* Letter).

[98] *Id.*

[99] *Id.*

[100] VoiceStream June 15 *Ex Parte* Comments at 2,4. VoiceStream indicates that E-OTD has been included as part of the GSM standard and has also been adopted as one standard method for position determination for forthcoming third generation (3G) wireless systems. *See* European Telecommunications Standards Institute (ETSI), TS V0.0.6 (2000-1), Digital cellular telecommunications system (Phase 2+); Location Services (LCS); Location Services Management (GSM 12.71 version 0.0.6), April 2000, at 73.

[101] VoiceStream June 15 *Ex Parte* Comments at 4.

[102] *Id.* at 4, 6. *See generally* VoiceStream August 9 *Ex Parte* Comments (presenting preliminary test results from an E-OTD trial conducted in Houston, Texas).

[103] *Id.* at 4, 15.

[104] Qualcomm argues that we are without legal authority to grant VoiceStream a waiver because it has not filed a formal waiver petition. *See* Letter from Dean R. Brenner, Attorney for Qualcomm, Incorporated, to Magalie Roman Salas, Secretary, FCC, dated August 22, 2000 at 4 (Qualcomm August 22 *Ex Parte* Letter). Because we (continued....)

to implement the NSS/E-OTD approach, subject to certain conditions.

56. As an initial matter, we find that VoiceStream, whose network uses the GSM air interface, faces special circumstances, as it appears that the NSS/E-OTD approach may be one of the only ALI solutions available in the near term for GSM systems. Although it is the standard air interface in most countries worldwide, GSM is used by carriers serving only a small percentage of U.S. wireless subscribers.[105] There is evidence to suggest that the development of ALI capabilities for use by GSM carriers has lagged behind that for carriers using other interfaces that are more widely used in the United States, such as AMPS, CDMA, and TDMA. For example, several network location technology providers have indicated that they have not begun testing GSM solutions yet.[106] While we understand that trials of GPS technology with GSM systems have very recently been conducted in Europe,[107] little evidence has been presented to indicate GPS-capable handsets for use with GSM networks will be available.[108] It appears that the NSS/E-OTD approach may be the only method available to GSM carriers for compliance with Phase II for some time.

57. Moreover, we determine based on the commitments that VoiceStream has made, that its proposal represents a promising approach that may offer significant public safety benefits, if it performs as expected. For example, VoiceStream has committed to implement the NSS throughout its network by the fourth quarter of 2001, without regard to whether it has received any PSAP requests for Phase II capability. The NSS approach uses data currently reported by the handset and data currently received by the base stations monitoring the handset, including timing and signal strength data, to calculate a handset's position.[109] In contrast with assisted GPS solutions, NSS coverage would provide location information for 911 calls from non-ALI capable handsets immediately. It would also provide similar location information for roamers. Unlike other network-based technologies, which usually require data from two or more cell sites, the NSS approach requires data from only a single cell to report the caller's location, though accuracy improves when additional cell sites can be used.[110]

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have discretion to grant waivers on our own motion, we reject this argument. *See* 47 CFR §§ 1.3, 1.925(a). We emphasize, however, that requests for waiver made through the *ex parte* process are discouraged; parties seeking a waiver of the Commission's rules should, except in the unusual case, formally file a waiver request with the Commission pursuant to our rules of practice and procedure. *See generally,* 47 C.F.R. § 1.925.

[105] *See* Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, *Fifth Report*, FCC 00-289, at Appendix B, Table 5 (released August 18, 2000) (estimating that GSM is used to serve 12% of total U.S. digital mobile telephone subscribers).

[106] *See* FCC July 6 Meeting *Ex Parte* Summary at 6-7.

[107] Letter from Dean R. Brenner, Attorney for Qualcomm Inc., to Magalie Roman Salas, Secretary, FCC, July 28, 2000 (Qualcomm July 28 *Ex Parte* Letter).

[108] In fact, Motorola, Nokia, and Ericsson argue that the technology used in the European trials is not currently available for commercial use, nor presently suitable for wireless handset integration. *See* Letter from Mary Brooner, Motorola, Barbara Baffer, Ericsson, Inc., and Leo FitzSimon, Nokia, Inc. to Magalie Roman Salas, Secretary, FCC, dated August 18, 2000 (Motorola, Nokia and Ericsson August 18 *Ex Parte* Letter) at 2-3.

[109] VoiceStream June 15 *Ex Parte* Comments at 3.

[110] *Id.*

58. Further, the NSS location capability should provide a notable improvement in accuracy and reliability over Phase I location information, which provides only the location of the cell site or sector receiving the call. This cell might serve an area with a radius of several miles, especially in rural areas where distances between cell towers are generally longer. Moreover, Phase I data can in some cases be misleading, as wireless calls are not always handled by the nearest cell, but Phase I presumes that the call is coming from the area usually served by the cell. The NSS approach, by contrast, would provide an actual fix on the call with an accuracy that would be significantly more precise, to within 500-1000 meters or less, 67 percent of the time. Further, this information would be more reliable, as location would be computed, rather than presumed based on the cell site receiving the call. This improvement in accuracy and reliability over Phase I should make it easier to route calls automatically to the correct PSAP and to dispatch emergency personnel more quickly to the scene of an emergency.

59. Use of E-OTD technology, in combination with the NSS "safety net" should provide substantial additional public safety benefits, including rapid initial deployment of ALI capability, with a relatively brief transition to even more precise levels of accuracy. With the inclusion of E-OTD capability, VoiceStream asserts that its proposed solution will achieve the accuracy standards required for network-based solutions, 100 meters/67 percent of the time, and in some cases, may be accurate to 50 meters or less.[111] Further, because E-OTD requires only a software modification to handsets and some network equipment, VoiceStream indicates that it can comply with the benchmarks for distributing ALI-capable handsets in the current handset deployment schedule.[112] For the same reason, implementation of E-OTD may be less costly than some other Phase II solutions.[113] In addition, VoiceStream claims that accuracy for both the baseline NSS and E-OTD technologies will improve over time, as the software is refined, experience is gained, and additional cell sites are added to serve increasing traffic.[114] This expected accuracy improvement is reflected in VoiceStream's commitment to meet the accuracy requirement for handset-based solutions of 50 meters/67 percent within two years, or by October 1, 2003, an accuracy level it says has already been achieved in tests.[115]

60. Given the substantial public safety benefits this solution may achieve if it performs as planned, we find it appropriate to grant VoiceStream permission to pursue this approach. Accordingly, we will grant VoiceStream's request for waiver, subject to compliance with the specific conditions we set forth in the paragraphs that follow. Because E-OTD requires handset modifications in order to be effective, VoiceStream will be subject to all of the requirements applicable to handset based technologies, except as specifically waived or modified in this Order.

61. First, as proposed, VoiceStream must deploy NSS capability by the fourth quarter of 2001 and have deployment throughout its network by or before December 31, 2001. This technology must provide location information with an accuracy and reliability of 1000 meters, or better, for 67 percent of

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[111] *Id.* at 6; *see also* Cambridge Positioning Systems web site, www.cursor-system.com.

[112] VoiceStream June 15 *Ex Parte* Comments at 4.

[113] In its 1999 waiver petition, Aerial estimated that its hybrid solution would cost $5 million to implement, compared with a network-based solution implementation cost of $41 million. Aerial Waiver Petition at 2-3. These cost figures reflect Aerial's network prior to its acquisition by VoiceStream.

[114] VoiceStream June 15 *Ex Parte* Comments at 4, 12.

[115] *Id.* at 6, 15.

calls.

62. Second, by October 1, 2001, Voicestream must ensure that at least 50 percent of all new handsets activated are E-OTD capable. Although VoiceStream has not made a specific commitment in this regard, we require it to ensure that 100 percent of all new handsets activated are E-OTD capable by March 31, 2002. We conclude that it is reasonable to expect VoiceStream to meet or beat this timetable, in view of the relative simplicity of the software upgrade involved.[116]

63. Third, initially, VoiceStream's E-OTD capable handsets must provide ALI with an accuracy of 100 meters/67 percent of the time and 300 meters/95 percent of the time. Thus, effective October 1, 2001, VoiceStream must ensure that all E-OTD capable handsets comply with this accuracy requirement.

64. Fourth, VoiceStream must ensure that all new E-OTD capable handsets activated on or after October 1, 2003 comply with an accuracy requirement of 50 meters/67 percent of calls and 150 meters/95 percent of calls.

65. Fifth, as is the case for handset-based solutions, within six months after a PSAP request, or October 1, 2001, whichever is later, VoiceStream must implement any network or infrastructure upgrades necessary to provide Phase II service, and begin providing Phase II location information.

66. Sixth, VoiceStream must comply with the requirement to achieve 95 percent penetration of location-capable handsets among its subscribers no later than December 31, 2005.

67. Seventh, in order to assure that NSS and E-OTD approach is progressing and remains a realistic option for meeting the terms of the waiver, VoiceStream must report to the Wireless Telecommunications Bureau semiannually, beginning October 1, 2000 and continuing through October 1, 2003, on its experience with NSS and E-OTD, including actual deployment and the results of all tests and trials.

68. To the extent that VoiceStream cannot comply with any of these conditions, it will be expected to use another ALI methodology that comports with our requirements. For example, if the E-OTD approach proves unable to provide 50 meter/67 percent accuracy within two years as projected, VoiceStream would be required to adopt another approach that would meet our accuracy requirements. In view of the highly competitive nature of the wireless market, we would also expect market forces to compel VoiceStream to match its competitors' efforts to provide enhanced safety features, in the form of heightened accuracy, to their subscribers.

3. USCC Request for Extension

69. **Background.** On June 29, 2000, USCC filed an *ex parte* letter in this docket requesting an extension of all Phase II deadlines for rural wireless carriers.[117] USCC contends that without an extension, rural wireless carriers like USCC will be forced to begin spending millions of dollars to implement a network-based Phase II solution, because equipment manufacturers are unable at present to

[116] At least one major handset manufacturer, Ericsson, has indicated that it may be able to provide E-OTD capable handsets for GSM systems towards the end of 2001. *See* FCC June 29 Meeting *Ex Parte* Summary at 4.

[117] USCC Request at 2.

guarantee they will provide a handset-based solution that satisfies the requirements and timetable.[118] USCC claims that a network-based solution will not work in many rural areas, and will be prohibitively expensive for rural wireless carriers.[119] For these reasons, USCC seeks a six-month extension that would be renewed until a handset solution is widely available.[120]

70. **Discussion.** We find it appropriate to treat USCC's letter as a request for waiver of the Phase II rules.[121] Although we recognize that rural wireless carriers may face distinct challenges in implementing Phase II, we decline to grant the requested relief at this time. We find that the request is insufficiently substantiated, and we believe that the need for such relief may be alleviated by the adjustments to the handset deployment schedule that we adopt in this Order. In support of its claim that handset-based solutions will not be available, USCC presents correspondence with two handset manufacturers. One manufacturer indicates that FCC's timeline will be very difficult to meet,[122] whereas the other manufacturer states that it will not have a handset solution prior to October 2001.[123] Under the revised rules adopted today, handset-based solutions need not be offered until October 1, 2001 and need not be deployed in quantity until December 31, 2001. Thus, the two letters do not appear to demonstrate that the two manufacturers cannot or will not have handsets available that will permit USCC to comply with the handset phase-in schedule as revised today. In addition, even if these two manufacturers do not have ALI-capable handsets available, there is evidence that other handset manufacturers may.[124]

71. Further, although we have previously recognized that network-based solutions may pose particular challenges in rural areas, as USCC points out,[125] we do not find USCC's claim that network-based solutions will be prohibitively expensive for rural carriers to be adequately substantiated. Although we have no basis upon which to question USCC's estimate that it would cost about $90 million to upgrade its more than 2,500 cell sites to employ TruePosition's network-based solution,[126] TruePosition is only one of several companies offering network-based solutions. Other network-based solutions may prove less expensive for rural carriers, such as USCC, to implement, especially where they

[118] *Id.* at 1.

[119] *Id.* at 6-7.

[120] *Id.* at 8.

[121] USCC does not specify a procedural vehicle for considering and acting on its request. If considered a petition for reconsideration of the *E911 Third Report and Order*, the request would be untimely. *See* 47 U.S.C. § 405(a).

[122] USCC Request, Exhibit A, e-mail from Tom Dietrick, Ericsson.

[123] *Id.*, Exhibit B, e-mail from Mark H. Woolery, Audiovox.

[124] For example, part of USCC's network uses the CDMA air interface. As we discussed above, ALI-capable Qualcomm chipsets for CDMA handsets are scheduled to be available before October 1, 2001.

[125] USCC Request at 3-4, citing *E911 Third Report and Order*, 14 FCC Rcd at 17400.

[126] USCC Request at 6. USCC suggests that the actual cost may be higher in order to address problems presented by cell sites in sparsely populated areas or in straight lines along highways.

are being offered on terms that do not require an up-front investment by carriers.[127]

72. In addition, even if USCC were to incur the expenses specified, it appears unlikely that it would incur them all at once, as implied.[128] Our rules require deployment of network-based solutions only if a PSAP is able to receive and use Phase II information and requests Phase II, within six months of such a request. It is doubtful that all PSAPs within USCC's service territory will be ready to request Phase II by October 1, 2001.[129] Further, in areas where PSAPs do request Phase II, carriers have 18 months to complete deployment of network-based solutions.

73. We also find USCC's request for extension overly broad. By its terms it would extend the schedule for all rural carriers until ALI-capable handsets are "widely available," even if those carriers plan to employ network-based solutions, or hybrid solutions, or use an air interfaces for which ALI-capable handsets are available sooner. The effect could be to substantially delay Phase II deployment even in cases where this is unnecessary. Moreover, USCC's request does not specify how "rural" wireless carriers are to be identified, for the purposes of determining to whom the waiver would apply.

74. Our denial of USCC's request does not foreclose future waiver requests from USCC or other carriers, including rural carriers. As discussed above, though, we would expect those requests to be specific, focused and limited in scope, and with a clear path to full compliance. We also expect that the reports of carrier plans for Phase II, to be filed later this year, should provide a better understanding of Phase II deployment issues and opportunities and helpful background for evaluating any such requests.

C. Schedule for Carrier Reports

75. **Background**. As part of our program to keep Phase II on schedule and to encourage and monitor advance planning and discussion among the parties involved in Phase II, the *E911 Third Report and Order* required wireless carriers subject to the Phase II rules to submit a report on their plans for implementing Phase II no later than October 1, 2000, one year before the Phase II implementation date.[130] In its comments regarding the petition for reconsideration filed by Nokia and Motorola, GTE contends that this date is unworkable and unrealistic, because the process of adopting new standards for location solutions requires time and effort.[131] GTE argues that PSAPs, carriers, and manufacturers must be given sufficient time to determine the appropriate technology, pick the solution vendor and conduct trials to test location solutions. In addition, it says, carriers and manufacturers must be afforded sufficient time fully to understand location accuracy verification requirements that may be promulgated by the Commission and to implement such requirements as part of their trial and testing programs. GTE

[127] See para. 29, *supra*, for a discussion of vendor proposals to offer E911 location information to carrier for free, or through a service bureau approach.

[128] USCC Request at 6.

[129] USCC states that it has already received several statewide E911 requests and expects similar requests from other state or local PSAPs but does not indicate what proportion of its cell sites would be affected by these requests. *Id.* at 5-6.

[130] *E911 Third Report and Order*, 14 FCC Rcd at 17427. *See* Section 20.18(h) of the Commission's Rules, 47 C.F.R. § 20.18(h).

[131] GTE Comments at 2-3.

proposes that the October 1, 2000 notification requirement be extended to June 2001.[132]

76. Nokia and Motorola also suggest moving the October 1, 2000 report date, based on concerns that the implementation and volume requirements for handset-based location technology would be difficult to meet for an October 1, 2000 selection date, especially in view of the fact that the Commission had not adopted compliance criteria.[133] They request that the Commission delay its carrier technology selection report date from October 1, 2000 and revisit the schedule based upon the release of any compliance verification procedures, to permit the wireless industry sufficient time to accurately comply with the E911 requirements.[134]

77. NENA and NASNA oppose changing the reporting schedule. They point out that the reporting schedule was a planning tool adopted at the suggestion of a vendor-carrier coalition, and argue that refinements in measurement methods for location accuracy verification are not likely to change a carrier's mind about the larger question of Phase II ALI technology choice.

78. **Discussion.** We conclude that a slight extension of the date upon which carriers must file their implementation plan reports would not substantially undercut their purpose, nor result in further delays in the deployment of the Phase II technologies. Thus, we modify the reporting deadline set in our rules from October 1, 2000 to November 9, 2000. This slight modification provides carriers with sufficient additional time in which to react to the revisions to the E911 rules we adopt today. It also reflects the view of some parties that moving back the reporting deadline is necessary in light of the delay in the release of the OET Guidelines addressing testing and verification of ALI technologies.

79. We continue to believe that early information about the Phase II technologies that carriers will be using is an important planning tool for carriers and PSAPS and necessary for our monitoring of compliance; thus, we provide only a short extension of the reporting deadline. We do not believe this short delay in the reporting deadline affects our ability to monitor compliance, nor the usefulness of the reports to this Commission, the public safety community, manufacturers of wireless locations technologies and equipment and others, who need to coordinate their production and distribution schedules with carrier orders. In our view, the carrier reports will still serve their intended purpose of assisting public safety organizations in their planning for Phase II implementation, especially in understanding the extent to which local wireless carriers may be employing differing technologies, and increase the likelihood of cooperative discussions between public safety organizations and carriers.

80. We decline to adopt the substantial delay advocated by some parties, however. Delay in filing the reports until June 2001, which is actually two months after the date by which PSAPs must request Phase II to assure earliest deployment, and only four months before the October 1, 2001 implementation date, would seriously erode if not eliminate the value of the reports for all these purposes. Moreover, while we expect that the report will provide useful information regarding the ALI technologies carriers will employ, the report does not constitute a final or irrevocable commitment by carriers, as GTE seems to imply. As we indicated in the *E911 Third Report and Order*, carriers may make good faith changes in their plans even after the report is filed, including changes in ALI

[132] *Id.*

[133] Nokia and Motorola Reply at 7.

[134] *Id.* at 7-8.

technologies.[135] These changes are to be filed within thirty days of the adoption of any such change. Thus, GTE's concern that it will lack sufficient time to make an informed decision regarding ALI technologies by October 1, 2000, even if true, provides no basis for changing the reporting date significantly beyond that timeframe. GTE and other carriers are obligated to develop plans for implementing Phase II and to report those plans by November 9, 2000, not to halt efforts to evaluate how best to provide Phase II. Indeed, information concerning other carriers' plans may assist in those evaluations, as it should assist other participants in making Phase II a reality.

81. Similarly, we agree with NENA and NASNA that uncertainty regarding criteria for verifying compliance with the ALI accuracy and reliability requirements is not a persuasive or adequate basis for a considerable change in the report date. Those criteria should not substantially alter the accuracy and reliability requirements we have established – only provide guidance on acceptable ways to test ALI technologies. Moreover, OET, in association with Wireless Bureau, issued the compliance and verification guidelines as directed on April 12, 2000. Carriers should have adequate time to assess any actual effect the OET Guidelines might have on their evaluation of ALI technologies and to reflect such effect in their reports before the reporting date we establish herein. And, as we have already discussed, carriers have the option of revising their plans even after those reports are filed.

D. Accuracy Levels

82. **Background**. In its petition for reconsideration, Aerial contended that the new accuracy levels for handset-based solutions were adopted unexpectedly without proper notice under the Administrative Procedure Act and that the citations used by the Commission do not support the new accuracy levels.[136] It also claims its petition for waiver to use a non-GPS handset solution was "dismissed under improper consideration and Aerial is left with no means to request a waiver of the Commission's newly created standard."[137] PCIA, a trade association of which Aerial is a member, similarly questions whether the Commission complied with the APA, relied too heavily on GPS vendors, and was competitively neutral in adopting different accuracy standards for the two technologies.[138]

83. **Discussion**. As discussed above, we are in this Order granting Aerial's renewed request for a waiver to implement a non-GPS handset solution, as presented in its subsequent *ex parte* presentations. Further, we believe the rules as adopted in the *E911 Third Report and Order* and revised here were procedurally proper and fully supported by the record. The original *E911 Notice of Proposed Rulemaking* included within its scope the question of ALI accuracy levels.[139] We requested additional comment on location technology and specifically on adopting more precise accuracy requirements in the *E911 Second NPRM,* issued in 1996.[140] In response to petitions for reconsideration of the initial *E911*

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[135] *E911 Third Report and Order,* 14 FCC Rcd at 17428.

[136] Aerial Petition at 2-3.

[137] *Id.* at 3.

[138] PCIA Comments at 4-6.

[139] Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102, RM-8143, *Notice of Proposed Rulemaking*, 9 FCC Rcd 6170, 6178-6179 (1994).

[140] *E911 Second NPRM,* 11 FCC Rcd at 18743-18746.

First Report and Order, we indicated that we would consider proposals for further rules or waivers to allow a phase-in for handset-based solutions, especially to the extent this would help achieve further improvements in ALI capabilities such as improved accuracy.[141] The Wireless Bureau, acting under its delegated authority to handle rulemakings such as this one, subsequently issued two public notices that more specifically raised this issue, and both Aerial and PCIA among others participated in this proceeding.[142] The issue of whether to adopt a more precise accuracy standard for handset-based technologies was expressly raised in those notices and discussed in the comments. Aerial and PCIA, of course, also have had the opportunity to raise this issue again on reconsideration.

84. The specific accuracy standard adopted also was clearly and directly supported by the record, notably by the results of an actual trial of a handset-based solution in King County, Washington, which we cited, as well as accuracy results reported by Lucent and a trial in Denver by SnapTrack.[143] The accuracy requirement we adopted is close to but slightly less stringent than the accuracy reported in the King County trial. Moreover, IDC, the technology provider in that 1998 trial, also asserted that the test involved an early generation chip and that improved versions would provide improved accuracy.[144] Other trials of handset-based solutions have produced similar results and the recent decision of the President to allow commercial availability of more accurate GPS signals will permit further improvements in accuracy for some GPS-based solutions.[145] There was thus substantial record evidence, which continues to accumulate, to indicate that handset-based solutions will be able to achieve the accuracy and reliability benchmarks.

85. Moreover, as we discussed above, in establishing the accuracy requirements, we do not seek to guarantee that any particular location technology can be used to provide E911 service. Our goal is to improve the public safety. While we have sought to allow fair and open competition among technologies, any candidate solution is judged on its overall performance in improving the public safety. Accuracy is one important consideration in that judgment, but so too are speed of deployment, completeness of coverage, and other factors relevant to the public safety. The manner in which we address VoiceStream's renewed request for waiver in the current Order is an example of this process and approach.[146] While the initial accuracy of VoiceStream's proposed solution falls short of that required for handset-based solutions and a phase-in is necessary to achieve complete coverage, the other public safety benefits of its solution justify allowing its use, provided of course that the solution can satisfy these conditions in practice. For these reasons, we accordingly deny Aerial's petition for reconsideration.

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[141] *E911 Reconsideration Order*, 12 FCC Rcd at 22724-22725 (1997).

[142] Public Notice, Wireless Telecommunications Bureau Outlines Guidelines for Wireless E911 Rule Waivers for Handset-Based Approaches to Phase II Automatic Location Identification Requirements, 13 FCC Rcd 24609 (1998); Public Notice, Wireless Telecommunications Bureau Requests Targeted Comment on Wireless E911 Phase II Automatic Location Identification Requirements, 14 FCC Rcd 8858 (1999).

[143] *E911 Third Report and Order*, 14 FCC Rcd at 17419, 17421.

[144] *Id.* at 17421.

[145] *See* Statement by the President Regarding the United States' Decision to Stop Degrading Global Positioning System Accuracy, May 1, 2000, available at http://www.pub.whitehouse.gov.

[146] *See supra* paras. 51-68.

V. PROCEDURAL MATTERS

A. Regulatory Flexibility Act

86. As required by the Regulatory Flexibility Act, 5 U.S.C. § 604, the Commission has prepared a Final Regulatory Flexibility Analysis of the possible economic impact on small entities of the policy and rules adopted in this Third Report and Order. The Final Regulatory Flexibility Analysis is set forth in Appendix C.

B. Paperwork Reduction Act of 1995 Analysis

87. This Order contains a new information collection. As part of our continuing effort to reduce paperwork burdens, we invite the general public and the Office of Management and Budget (OMB) to take this opportunity to comment on the information collections contained in this Order, as required by the Paperwork Reduction Act of 1995.[147] Public and agency comments are due 60 days from publication of the summary of this Order in the Federal Register, and OMB comments are due 60 days from that date. Comments should address:

- Whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility.
- The accuracy of the Commission's burden estimates.
- Ways to enhance the quality, utility, and clarity of the information collected.
- Ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

88. In addition to filing comments with the Secretary, a copy of any comments on the information collections contained herein should be submitted to Judy Boley, Federal Communications Commission, Room 1-C804, 445 Twelfth Street, S.W., Washington, D.C. 20554, or via the Internet to jboley@fcc.gov, and to Edward C. Springer, OMB Desk Officer, Room 10236 New Executive Office Building, 725 Seventeenth Street, N. W., Washington, D.C. 20503, or via the Internet to edward.springer@omb.eop.gov.

89. In addition to the new information collection, this Order also affects an approved information collection (OMB No. 3060-0910) by extending the date by which carriers must file implementation plan reports from October 1, 2000, to November 9, 2000.

C. Authority

90. This action is taken pursuant to Sections 1, 4(i), 201, 303, 309, and 332 of the Communications Act of 1934, as amended by the Telecommunications Act of 1996, 47 U.S.C. §§ 151, *154(i), 201, 303, 309, 332.*

[147] Pub. L. No. 104-13.

D. Further Information

91. For further information, contact Dan Grosh of the Policy Division, Wireless Telecommunications Bureau, at 202-418-1310 (voice) or 202-418-1169 (TTY).

VI. ORDERING CLAUSES

92. Accordingly, IT IS ORDERED that Part 20 of the Commission's Rules is amended as set forth in Appendix B.

93. IT IS FURTHER ORDERED that the rule amendments made by this Order and specified in Appendix B SHALL BECOME EFFECTIVE 30 days after the date of the publication of the rule amendments in the Federal Register, except for the new information collection regarding waivers, which will become effective 120 days after publication of a summary of the Order in the Federal Register, pending OMB approval.

94. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Operations Division, SHALL SEND a copy of this Order, including the Supplemental Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

95. IT IS FURTHER ORDERED that the petition for reconsideration filed by Nokia and Motorola IS DENIED.

96. IT IS FURTHER ORDERED that the petition for reconsideration filed by Sprint PCS IS DENIED.

97. IT IS FURTHER ORDERED that the petition for reconsideration filed by Aerial Communications, Inc., IS DENIED.

98. IT IS FURTHER ORDERED that VoiceStream Communications is GRANTED A WAIVER of the E911 Phase II requirements, SUBJECT TO CONDITIONS, TO THE EXTENT INDICATED HEREIN.

99. IT IS FURTHER ORDERED that the request for extension of the E911 Phase II deadlines for rural carriers filed by United States Cellular Corp. IS DENIED.

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Secretary

APPENDIX A

Petitions for Reconsideration:

Aerial Communications (Aerial), subsequently acquired by VoiceStream Wireless
Nokia Inc. and Motorola, Inc. (Nokia and Motorola)
Sprint Spectrum, L.P., d/b/a Sprint PCS (Sprint PCS)

Comments and Oppositions:

Aerial
Association of Public Safety Communications Officials International (APCO)
AT&T Wireless Services (AT&T)
GTE Service Corporation (GTE)
KSI, Inc. (KSI)
Nextel Communications, Inc. (Nextel)
Personal Communications Industry Association (PCIA)
Qualcomm, Incorporated (Qualcomm)
SnapTrack, Inc. (SnapTrack)
U.S. West Wireless, LLC

Replies:

Aerial
APCO
AT&T
BellSouth Corporation (BellSouth)
Cellular Telecommunications Industry Association (CTIA)
National Emergency Number Association and National Association of State Nine-one-one Administrators (NENA and NASNA)
Nextel
Nokia and Motorola
Sprint

APPENDIX B

FINAL RULES

Part 20 of Title 47 of the Code of Federal Regulations is amended as follows:

Part 20 - COMMERCIAL MOBILE RADIO SERVICES

1. Section 20.18 is amended by revising paragraphs (g)(1) and (2) as follows:

* * * * *

(g) *Phase-in for Handset-based Location Technologies.* Licensees subject to this section who employ a handset-based location technology may phase in deployment of Phase II enhanced 911 service, subject to the following requirements:

(1) Without respect to any PSAP request for deployment of Phase II 911 enhanced service, the licensee shall:

(A) Begin selling and activating location-capable handsets no later than October 1, 2001;
(B) Ensure that at least 25 percent of all new handsets activated are location-capable no later than December 31, 2001;
(C) Ensure that at least 50 percent of all new handsets activated are location-capable no later than June 30, 2002; and
(D) Ensure that 100 percent of all new digital handsets activated are location-capable no later than December 31, 2002 and thereafter.
(E) By December 31, 2005, achieve 95 percent penetration of location-capable handsets among its subscribers.

(2) Once a PSAP request is received, the licensee shall, in the area served by the PSAP, within six months or by October 1, 2001, whichever is later:

(A) Install any hardware and/or software in the CMRS network and/or other fixed infrastructure, as needed, to enable the provision of Phase II enhanced 911 service; and
(B) Begin delivering Phase II enhanced 911 service to the PSAP.

* * * * *

2. Section 20.18 is amended by revising paragraph (i) as follows:

* * * * *

(i) *Reports on Phase II plans.* Licensees subject to this section shall report to the Commission their plans for implementing Phase II enhanced 911 service, including the location-determination technology they plan to employ and the procedure they intend to use to verify conformance with the Phase II accuracy requirements by November 9, 2000. Licensees are required to update these plans within thirty days of the adoption of any change. These reports and updates may be filed

electronically in a manner to be designated by the Commission.

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APPENDIX C

SUPPLEMENTAL FINAL REGULATORY FLEXIBILITY ANALYSIS (SFRFA)

1. As required by the Regulatory Flexibility Act (RFA),[1] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in Appendix B II of the Further Notice of Proposed Rulemaking in this proceeding (FNPRM).[2] A Final Regulatory Flexibility Analysis (FRFA) was incorporated in Appendix C of the Third Report and Order (Third R&O).[3] Additionally, The Commission sought written public comment on the proposals in the FNPRM, including comment on the IRFA. These comments were discussed in the FRFA. This Supplemental Final Regulatory Flexibility Analysis (SFRFA) considers the current Order on Reconsideration (Order) and updates information contained in the FRFA. The present SFRFA, contained in the Order, conforms to the RFA.[4]

Need For, and Objectives of, the Order

2. The Order is intended to provide wireless carriers, manufacturers, and the public safety community with additional clarity so that Phase II of the Commission's 911 effort can be deployed and operational on schedule, so far as possible. The Order supports the efforts of many entrepreneurs, public safety answering points, and companies who are working toward the technical and operational improvements needed to optimize 911 service and thus save lives.

Summary of Significant Issues Raised by Public Comments in Response to the FRFA

3. No comments were directed at the FRFA, and no comments were received from small entities that are not part of a larger organization. However, one reconsideration petition, filed jointly by handset manufacturers Nokia, Inc. and Motorola, Inc. contends that the rules adopted in the Third R&O set an overly aggressive deployment schedule for the introduction of handset-based Automatic Location Identification (ALI) technologies for which there is inadequate support in the record. Nokia, Motorola, and Ericsson ask that the Commission relax the handset deployment schedule substantially by only requiring carriers to begin selling and activating ALI-capable handsets 18 months after the date on which they have made their technology choices known the FCC. (The discussion concerning these petitions and comments supporting Nokia, Motorola and Ericsson's arguments favoring a relaxed schedule may be found at paragraphs 12-14 of the Order.) Other parties raised concerns about the separate schedule for ALI-capable handset deployment triggered by a public service answering point (PSAP) request, noting the impracticality of such a schedule. (This contention in discussed in paragraph 15 of the Order.) Finally, in paragraph 16 of the Order, other parties maintain that the requirement in the current 911 rules that carriers employing handset-based solutions undertake reasonable efforts to achieve 100 percent usage of ALI-capable handsets by their customers by December 31, 2004, or two years after a PSAP request, is both overly demanding and vague.

Description and Estimate of the Number of Small Entities To Which Rules Will Apply

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[1] *See* 5 U.S.C. § 604. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[2] 11 FCC Rcd 18676, 18764 (1996).

[3] 14 FCC Rcd 17388, 17438 (1999).

[4] *See* 5 U.S.C. § 604.

4. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[5] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[6] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[7] A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[8] A small organization is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[9] Nationwide, as of 1992, there were approximately 275,801 small organizations.[10] Below, the Commission updates the figures reflected in the FRFA in the Third Report and Order.

5. **Broadband Personal Communications Service (PCS).** The broadband PCS spectrum is divided into six frequency blocks designated A through F, and the Commission has held auctions for each block. As stated in paragraph 11 of the FRFA, there is a total of 183 small entity PCS providers as defined by the SBA and the Commission's auction's rules.

6. **Narrowband PCS.** The Commission has auctioned nationwide and regional licenses for narrowband PCS. There are 11 nationwide and 30 regional licensees for narrowband PCS. The Commission does not have sufficient information to determine whether any of these licensees are small businesses within the SBA-approved definition for radiotelephone companies. At present, there have been no auctions held for the major trading area (MTA) and basic trading area (BTA) narrowband PCS licenses. The Commission anticipates a total of 561 MTA licenses and 2,958 BTA licenses will be awarded by auction. Such auctions have not yet been scheduled, however. Given that nearly all radiotelephone companies have no more than 1,500 employees and that no reliable estimate of the number of prospective MTA and BTA narrowband licensees can be made, we assume, for purposes of this SFRFA, that all of the licenses will be awarded to small entities, as that term is defined by the SBA. Therefore, there may be as many as 3,519 small entities affected.

7. **Specialized Mobile Radio (SMR).** The Commission awards bidding credits in auctions for geographic area 800 MHz and 900 MHz SMR licenses to firms that had revenues of no more than $15

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[5] 5 U.S.C. § 604(b)(3).

[6] *Id.* § 601(6).

[7] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register." 5 U.S.C. § 601(3).

[8] Small Business Act, 15 U.S.C. § 632 (1996).

[9] 5 U.S.C. § 601(4).

[10] U.S. BUREAU OF THE CENSUS, U.S. DEPT. OF COMMERCE, 1992 ECONOMIC CENSUS, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

million in each of the three previous calendar years.[11] In the context of both 800 MHz and 900 MHz SMR, this regulation defining "small entity" has been approved by the SBA.

8. The rules in the Order apply to SMR providers in the 800 MHz and 900 MHz bands that hold CMRS licenses. We do not know how many firms provide 800 MHz or 900 MHz geographic area SMR service as CMRS operators, nor how many of these providers have annual revenues of no more than $15 million. One firm has over $15 million in revenues. We assume, for purposes of this SFRFA, that all of the remaining existing SMR authorizations are held by small entities, as that term is defined by the SBA. In the 900 MHz SMR band, there are 60 small or very small entities and there are 38 such entities in the 800 MHz band.

Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements

9. In paragraphs 42-45, the Order discusses what should be included in successful waiver requests. All of the other changes adopted in this Order are extensions of the existing implementation schedule that do not impose new burdens. The critical nature of improving nationwide wireless E911 services does not allow the Commission much flexibility to differentiate between large and small entities because a lapse in the provision of dependable, responsive 911 service by a small business can lead to the same catastrophic result as a lapse by a large entity. However, the Commission, in adopting the E911 improvement program, has tried wherever possible to consider the individual needs and situation of all involved parties. In this decision, the actual cost of the amendments to all entities is nominal.

Steps Taken To Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

10. The RFA requires an agency to describe any significant alternative that it has considered in reaching its proposed approach, which may include the following four alternatives: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage.

11. First, the Commission declines to extend the implementation date for E911 Phase II beyond October 1, 2001, partially to avoid placing the burden for obtaining location information on PSAPs, already acting under constrained emergency conditions. This discussion is at paragraphs 24-30 of the Order. However, we do extend the date for initial distribution of ALI-capable handsets by seven months and we also adjust the timetable for carriers to meet certain interim benchmarks for activating new ALI capable handsets. The alternative, to leave the schedules as is, would impose a larger compliance burden on all carriers that elect to use handset-based technologies, whether such carriers are large or small. (Paragraphs 33-35 of the Order contain this discussion.) At paragraphs 36-37 of the Order, we defer the date by which a carrier must achieve full penetration of ALI-capable handsets by one year, and modify the manner in which we define full penetration. Further, at paragraphs 31-33 of the Order, the Commission eliminates the separate handset deployment schedule for areas where PSAPs have requested deployment of Phase II. These actions should provide flexibility to all entities to comply with 911 requirements utilizing the most current and efficient technology, thus also ensuring the most responsive

[11] 47 C.F.R. §90.814(b)(1).

and dependable 911 system possible. Thus the Commission again chose not to stay with the current schedule. The alternatives in each case would have resulted in additional burden on all affected parties.

12. One alternative that the Commission considered and rejected concerned the petition by USCC that requests a six-month extension of all Phase II deadlines for rural wireless carriers. As discussed in paragraph 69 of the Order, USCC contends that without such an extension, rural wireless carriers (often small entities) like USCC will be forced to begin spending millions of dollars to implement a network-based Phase II solution, because equipment manufacturers are unable at present to guarantee that they will provide a handset-based solution that satisfies the requirements and timetable. The Commission denied this request, in paragraphs 70-74 of the Order, finding that even if some manufacturers cannot meet even the deadlines as revised in this Order, others may very well be able to provide ALI-capable handsets within the new timeframe. Also, the Order maintains that the expenses involved will come over a period of time and not all come due at once and that USCC's request is overly broad. Further, the Order finds that there are certain ALI solutions that are being offered on terms that do not require up-front investment by carriers. Finally, the Order stresses that the Commission's denial of USCC's request does not foreclose future waiver requests from USCC or other carriers, including rural carriers.

13. Finally, it should be noted that the Commission's requirement that wireless carriers provide the location of wireless 911 callers has created a business opportunity for companies that are to develop and provide the technology to meet this obligation. It is expected that many location technology providers will qualify as small businesses.

14. **Report to Congress:** The Commission will send a copy of the Order, including this SFRFA, in a report to be sent to Congress pursuant to SBREFA, *see* 5 U.S.C. §801(a)(1)(A). In addition, the Commission will send a copy of the Order, including the SFRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of the Order and the SFRFA (or summaries thereof) will also be published in the Federal Register. *See* 5 U.S.C. § 604(b).

SEPARATE STATEMENT OF CHAIRMAN WILLIAM E. KENNARD

Re: *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102 (rel. Sept. 8, 2000)*

Today's action should jumpstart delivery of life-saving E911 services to the American public. We affirm all of the critical elements of our Phase II deployment requirements while making certain minor adjustments to better suit the current state of technological development, and otherwise simplify and clarify our wireless enhanced 911 (E911) rules. In so doing, the Commission takes another important step to provide certainty to the industry with respect to the deployment of life-saving E911 Phase II location technology to American consumers. Additionally, we require the accelerated deployment of Phase II by one carrier in exchange for interim limited relief on other aspects of our rules. We expect that, with the deployment of location technologies by one carrier, competitive conditions among wireless carriers will lead to further, expedited deployment by others. These actions should promote the rapid, ubiquitous deployment of the location technology that is so critical in an emergency situation.

We considered three requests for a waiver of our Phase II deployment requirements. Of the three requests, we deny two requests, finding that they have not met the strict waiver standard that the Commission intends to apply, but grant a limited waiver of our accuracy requirements for VoiceStream. I believe that the proposal put forward by VoiceStream represents a workable interim solution, and it is on this basis that I have agreed to grant this limited relief. Although VoiceStream is allowed additional time, until October 1, 2003, to meet our handset accuracy standards, after that date it must meet those more stringent standards. In the interim, it must deploy Phase II on a substantially accelerated basis, faster than any other carrier choosing a pure handset-based solution. In my view, these and other conditions imposed on VoiceStream as part of the grant of relief here ensure that the VoiceStream solution offers substantial public benefits. I emphasize that, as the order states, the limited waiver we grant VoiceStream is conditional – failure to satisfy the waiver's conditions will lead to its revocation and VoiceStream will be expected to implement another technology that meets our Phase II standards. Moreover, nothing in this order should be interpreted as a signal that the Commission has softened its resolve in enforcing the Phase II implementation mandate.

I note that VoiceStream's request has been subject to public comment and debate. Because time is of the essence as we approach key benchmark dates in the deployment of the Phase II technology - including a November 9, 2000 carrier reporting deadline - we have taken a reasonable course in issuing a definitive determination on this waiver request without delay.

JOINT SEPARATE STATEMENT OF
COMMISSIONERS SUSAN NESS AND GLORIA TRISTANI
Approving in Part, Dissenting in Part

Re: *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, CC Docket No. 94-102 (rel. Sept. 8, 2000)*

We respectfully dissent from the decision to grant VoiceStream a waiver of our enhanced 911 (E911) Phase II location identification rules. We would have preferred to seek public comment on VoiceStream's request to better understand the consequences for VoiceStream customers and E911 deployment generally.

As Americans increasingly rely on wireless services, the ability of wireless callers to reach public safety agencies – and these agencies' ability to locate the callers – becomes ever more important. Given the critical nature of emergency 911 services, sound public policy dictates that any proposal to significantly alter Phase II implementation warrants public comment on the details of the alteration. VoiceStream's request, however, is contained in a series of *ex parte* presentations and has not been made subject to sufficient public review and consideration. Even more troubling is our concern that today's action may, in effect, create an alternative Phase II implementation track for carriers inclined to seek new E911 solutions in lieu of prompt deployment under our existing rules.

Last fall, in light of technology developments that allow for handset-based location solutions, we modified our Phase II rules to include a second deployment track for handset-based approaches. Our decision came after exhaustive deliberation, involving the balancing of trade-offs such as the handset phase-in and the benefit of increased accuracy levels.

The decision here allows one carrier to pursue an alternative Phase II deployment track absent, we're afraid, a clear understanding of the consequences involved. The VoiceStream waiver, based on the GSM technology deployed by VoiceStream, inevitably invites other carriers to offer similar showings. The action here, fashioned as a waiver, may have the effect of a rule change, and thus should have warranted public notice and ample public scrutiny and consideration.

In the end, it is possible that VoiceStream's approach properly balances the goal of ensuring wireless location capability with the technological realities carriers confront in E911 deployment. Its hybrid system is intended to provide a safety net location solution for all wireless callers in VoiceStream's service area, while promising to reach the handset-based accuracy levels by October 2003. We do not question VoiceStream's commitment to E911 but continue to have questions about its hybrid approach. It is not clear that VoiceStream's proposal will reach the Commission's proscribed accuracy standards. Additionally, there is some question whether VoiceStream's proposal is the only viable option for GSM carriers, thus necessitating a waiver. Ultimately, we are concerned that in light of today's decision other carriers – whether deploying GSM or

other modulation technologies – may choose to focus on seeking a waiver rather than rapidly implementing E911 consistent with our accuracy and deployment requirements. After significant deliberations to create and revise our E911 rules, the VoiceStream request warranted rigorous public examination.